

# Applied Physics B

## Photo-physics and Laser Chemistry

Volume B 49  
1989

### Board of Editors

V. P. Chebotayev, Novosibirsk  
T. W. Hänsch, München  
E. P. Ippen, Cambridge  
W. Kaiser, München  
V. S. Letokhov, Moskau  
H. K. V. Lotsch, Heidelberg

F. P. Schäfer, Göttingen  
W. Schmidt, Aalen  
Y. R. Shen, Berkeley, CA  
T. Shimizu, Tokyo  
H. Walther, Garching  
J. Wolfrum, Heidelberg

### Copyright

Submission of a manuscript implies: that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, if any, as well as by the responsible authorities at the institute where the work has been carried out; that, if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the publisher; and that the manuscript will not be published elsewhere in any language without the consent of the copyright holders.

All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g., as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.

The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

*Special regulations for photocopies in the USA:* Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of U.S. Copyright Law, provided a fee is paid. This fee is US \$ 0.20 per page, or a minimum of US \$ 1.00 if an article contains fewer than five pages. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0721-7269, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.

Printers: Brühlsche Universitätsdruckerei, Giessen  
Printed in Germany © by Springer-Verlag Berlin, Heidelberg 1989



Springer International

# PHYSICS AND ASTRONOMY CLASSIFICATION SCHEME (PACS)

Shortened version for use in classifying papers for Applied Physics

## General

- 02 Mathematical methods in physics
- 06 Measurement science and metrology
- 07 Specific instrumentation
  - 07.60 Optical instruments and techniques, detection of radiation
  - 07.65 Optical spectroscopy and spectrometers
  - 07.75 Mass spectrometers and mass-spectroscopy techniques
  - 07.80 Electron and ion microscopes and spectrometers; techniques
  - 07.85 X-ray and gamma-ray instruments and techniques

## Atomic and molecular physics

- 32 Atomic spectra and interactions with photons
- 33 Molecular spectra and interactions of molecules with photons
- 34 Atomic and molecular collision processes and interactions
- 35 Experimentally derived information on atoms and molecules
- 36 Studies of special atoms and molecules (macro- and polymer molecules, clusters)

## Fundamental areas of phenomenology (including applications)

- 41 Electricity and magnetism
- 42 Optics (see also 78)
  - 42.10 Propagation and transmission in homogeneous media
  - 42.20 Propagation and transmission in inhomogeneous media
  - 42.30 Optical information, image formation and analysis
  - 42.40 Holography
  - 42.50 Quantum optics
  - 42.55 Laser processes
    - C Pumping mechanisms
    - E Molecular gas lasers ( $\text{CO}_2$ , CO,  $\text{N}_2\text{O}$ , formaldehyde)
    - G Excimer lasers
    - H Atomic, ionic, and other gas lasers
    - M Laser action in liquids and organic dyes
    - P Laser action in semiconductors
    - R Laser action in solid-state lasers
    - T Free-electron lasers
  - 42.60 Laser systems and laser-beam applications
  - B Design of specific laser systems
  - D Laser resonators, cavities, and amplifiers
  - E Laser beam deflection and focusing
  - F Laser beam modulation, mode locking, and tuning
  - 42.65 Nonlinear optics
  - 42.68 Atmospheric optics
  - 42.70 Optical materials
  - 42.80 Optical devices, techniques, and applications (including fiber and integrated optics)
- 43 Acoustics (see also 62)

## Fluids, plasmas, and electric discharges

- 52 Physics of plasmas and electric discharges

## Condensed matter: structure, mechanical and thermal properties

- 61 Structure of liquids and solids; crystallography (for surface structure, see 68.35; for thin-film structure, see 68.55)
  - 61.10 Determination of structures
  - 61.12 Neutron determination of structures
  - 61.14 Electron determination of structures
  - 61.16 Other determination of structures
  - 61.20 Liquid structures
  - 61.30 Liquid crystals
  - 61.40 Amorphous and polymer materials, glasses
  - 61.70 Defects in crystals
  - 61.80 Radiation damage and other irradiation effects
- 62 Mechanical and acoustical properties of condensed matter
- 63 Lattice dynamics and crystal statistics
- 64 Phase equilibria, and phase transitions
- 65 Thermal properties of condensed matter
- 66 Transport properties of condensed matter (nonelectronic)
  - 66.30 Diffusion and ionic conduction in solids

## Surfaces and interfaces; thin films and whiskers

- 68.10 Fluid surfaces and fluid-fluid interfaces
- 68.15 Liquid thin films
- 68.35 Solid surfaces and solid-solid interfaces (including bicrystals)
- 68.45 Solid-fluid interfaces
- 68.55 Thin films: growth, structure, epitaxy and nonelectronic properties
- 68.65 Layer structures, intercalation compounds, and superlattices: growth, structure, and nonelectronic properties
- 68.70 Whiskers and dendrites: growth, structure, and nonelectronic properties

## Condensed matter: electronic structure, electrical, magnetic, and optical properties

- 71 Electron states
- 72 Electronic transport
  - 72.15 Electronic phenomena in metals and alloys
  - 72.20 Conductivity phenomena in semiconductors and insulators
  - 72.40 Photoconductivity and photovoltaic effects
  - 72.50 Acoustoelectric effects
  - 72.60 Mixed conductivity and conductivity transitions
  - 72.70 Noise processes and phenomena
- 73 Electronic structure and electrical properties of surfaces, interfaces, and thin films
  - 73.20 Electronic surface states
  - 73.25 Surface conductivity
  - 73.30 Surface double layers, Schottky barriers, and work functions
  - 73.40 Interfaces
  - 73.60 Electronic properties of thin films
- 74 Superconductivity
  - 74.70 Superconducting materials
- 75 Magnetic properties and materials
  - 75.70 Magnetic films and plates
- 76 Magnetic resonances and relaxation: Mössbauer effect
- 77 Dielectric properties and materials
  - 77.55 Dielectric thin films
- 78 Optical properties
  - 78.30 Infrared and Raman spectra
  - 78.65 Optical properties of thin films
  - 78.70 X-ray spectra and positron annihilation
- 79 Electron and ion emission by liquids and solids; impact phenomena
  - 79.20 Impact phenomena (including electron spectra and sputtering)
  - 79.40 Thermionic emission
  - 79.60 Photoemission and photoelectron spectra
  - 79.70 Field emission and field ionization

## Cross-disciplinary physics

- 81 Materials science
  - 81.10 Methods of crystal growth and purification
  - 81.15 Methods of thin-film deposition
    - Z Laser deposition methods
  - 81.40 Treatment of materials and its effect on microstructure and properties
    - Z Laser machining
  - 81.60 Corrosion, oxidation, and surface treatments
    - Z Laser techniques, including ablation
- 82 Physical chemistry
  - 82.20 Chemical kinetics and chemical reactions
  - 82.30 Specific chemical reactions; reaction mechanisms
  - 82.40 Chemical kinetics and reactions: special regimes and techniques
    - Z Laser-induced reactions
  - 82.45 Electrochemistry and electrophoresis
  - 82.50 Photochemistry and radiation chemistry
  - 82.65 Surface processes
  - 82.70 Dispersive systems
  - 82.80 Chemical analysis and related physical methods of analysis
- 84 Electromagnetic technology
  - 84.60 Direct energy conversion and energy storage
- 85 Electrical and magnetic devices
  - 85.30 Semiconductor devices
  - 85.40 Integrated electronics
  - 85.60 Photoelectric and optoelectronic devices and systems
  - 85.80 Electrochemical, thermo-EM, and other devices
- 87 Biophysics (biological effects of radiation)

## Contents of Applied Physics B 49

This listing presents the papers in alphabetical order of the first author. The author index that follows covers **Applied Physics A** and **B**, and is presented in tabular form. In the first column the names are listed in alphabetical order. The second column together with the third one contains the bibliographic data necessary to locate the paper. The issue is specified by the number separated from the volume number by a slash. The fourth column states the major PACS number so that the topic of the paper can be inferred by consulting the PACS listing on the left:

### Photophysics and Laser Chemistry

Al-Dahir R.K., Dyer P.E., Sidhu J., Foulkes-Williams C., Oldershaw G.A.: Dual excimer and CO<sub>2</sub> laser etching studies of polyethylene Terephthalate. *Appl. Phys. B* 49/5, 435-440 (1989) PACS: 82.50M 42.60

Arnesson J., Dafu C., Gnepf S., Kneubühl F.K.: Multimode coupling and nonlinear-gain effects in distributed and helical feedback gas lasers. *Appl. Phys. B* 49/1, 1-28 (1989) PACS: 45.55E 42.60

Au L.B., Solymar L.: Transients in photorefractive two-wave mixing: A numerical study. *Appl. Phys. B* 49/4, 339-342 (1989) PACS: 42.80 42.40 42.65

Ausselegg F.R., Leitner A., Pedarnig J.D.: Influence of thermal treatment on second-harmonic generation in silver island films. *Appl. Phys. B* 49/3, 279-281 (1989) PACS: 78.65 42.65

Bachor H.-A., Fisk P.T.H.: Quantum noise - a limit in photodetection. *Appl. Phys. B* 49/4, 291-300 (1989) PACS: 42.50 07.62

Baev V.M., Eschner J., Weiler A.: Intracavity spectroscopy with modulated multimode lasers. *Appl. Phys. B* 49/4, 315-322 (1989) PACS: 32.70J 42.65

Baklanov E.V., Chebotayev V.P., Staroselsky M.P.: New nonlinear resonances in a gas in the presence of a strong optical field. *Appl. Phys. B* 49/2, 163-167 (1989) PACS: 32.00

Balykin V.I.: On the possibility of velocity monochromatization of atomic beams below recoil velocity. *Appl. Phys. B* 49/4, 383-388 (1989) PACS: 42.65K

Barr J.R.M., Hughes D.W.: Coupled cavity modelocking of a Nd:YAG laser using second-harmonic generation. *Appl. Phys. B* 49/4, 323-325 (1989) PACS: 42.60D 42.65

Bazhenov V.Yu., Vasnetsov M.V., Soskin M.S., Tarannenko V.B.: Dynamics of laser-induced bubble and free-surface oscillations in an absorbing liquid. *Appl. Phys. B* 49/5, 485-489 (1989) PACS: 42.65J 47.20 47.55

Becker T., Rinkleff R.-H., Steudel A.: Superradiant transitions between high-lying levels of Sr in an external electric field. *Appl. Phys. B* 49/3, 257-262 (1989) PACS: 32.60 42.50

Beuermann Th., Stuke M.: Tunable UV laser photolysis of organometallics with product detection by laser mass spectroscopy: Trimethylaluminium. *Appl. Phys. B* 49/2, 145-148 (1989) PACS: 81.15 82.50

Binh L.N., Dai X., Ja Y.H.: Laser-induced self-phase modulation in polymeric film. *Appl. Phys. B* 49/4, 393-396 (1989) PACS: 42.65 42.80

Candelier V., Giordano V., Hamel A., Théobald G., Cérez P., Audoin C.: Frequency stability of an optically pumped cesium beam frequency standard. *Appl. Phys. B* 49/4, 365-370 (1989) PACS: 32.80B 35.10 35.80

Chebotayev V.P., Ulybin V.A.: Doppler-free resonances of the second-order Raman scattering. *Appl. Phys. B* 49/4, 361-364 (1989) PACS: 42.50 42.62

Clark B.K., Luh W.T., Huennekens J.: NaK. 2<sup>1</sup>Σ → 1<sup>1</sup>Σ<sup>+</sup> band optically pumped laser near 1.02 μm. *Appl. Phys. B* 49/2, 155-161 (1989) PACS: 42.55H 33.50

Costela A., Muñoz J.M., Douhal A., Figuera J.M., Acuña A.U.: Experimental test of a four-level kinetic model for excited state intramolecular proton transfer dye lasers. *Appl. Phys. B* 49/6, 545-552 (1989) PACS: 33.50 42.55

Dam N., Reuss J.: Characterization of an ethylene free jet. *Appl. Phys. B* 49/1, 39-47 (1989) PACS: 34.50E 47.55

Danailov M.B., Christov I.P., Michailov N.I.: Image transfer by modulation of short light pulses. *Appl. Phys. B* 49/4, 371-375 (1989) PACS: 42.30V 42.30 42.60

Das T.K., Singh K.: Phase conjugation via unequal amplitude multiple gratings in photorefractives: A simple shooting method for numerical solution. *Appl. Phys. B* 49/6, 557-564 (1989) PACS: 42.65 78.20 42.40

Dinev S.G., Hadjichristov G.B., Stefanov I.L.: Interference effects between Raman and parametric stimulated emission. *Appl. Phys. B* 49/6, 521-525 (1989) PACS: 32.00 42.65

Dong S.Y., Wang G., Wang W., Zhang Z., Zheng J.: The role of cluster in surface-enhanced Raman scattering (SERS). *Appl. Phys. B* 49/6, 553-556 (1989) PACS: 68.45A

Erbachlo D.R., Solymar L., Takacs J., Wilson T.: Higher diffracted orders in a BSO crystal: An experimental study of transients. *Appl. Phys. B* 49/5, 431-433 (1989) PACS: 42.40 42.65 42.80

Ernst W.E., Kändler J.: Molecular-beam spectroscopy of high-temperature species with narrow-band dye lasers. *Appl. Phys. B* 49/3, 227-237 (1989) PACS: 35.80 33.80

Etchepare J., Grillon G., Arabat J.: Polarization effects in femtosecond time-resolved coherent scattering from molecules in liquids. *Appl. Phys. B* 49/5, 425-429 (1989) PACS: 33.20 42.65

Freisinger B., Kogelschatz U., Schäfer J.H., Uhlenbusch J., Viöl W.: Ozone production in oxygen by means of F<sub>2</sub>-laser irradiation at λ = 157.6 nm. *Appl. Phys. B* 49/2, 121-129 (1989) PACS: 33.80 82.50

Fuhrberg F., Frölich D., Litfin G.: Temporal evolution of the emission spectra of color center lasers. *Appl. Phys. B* 49/3, 205-209 (1989) PACS: 42.55B 42.55

Fuhrmann W., Demtröder W.: A continuously tunable GaAs diode laser with an external resonator. *Appl. Phys. B* 49/1, 29-32 (1989) PACS: 42.55 42.60

Giroux L., Back M.H., Back R.A.: The absorption of pulsed CO<sub>2</sub>-laser radiation by ethylene at total pressures from 25 to 3000 Torr. *Appl. Phys. B* 49/4, 307-313 (1989) PACS: 33.80K 42.60

Grimm R., Mlynek J.: The effect of resonant light pressure in saturation spectroscopy. *Appl. Phys. B* 49/3 179-189 (1989) PACS: 32.70J 42.50 42.65

Heist P., Rudolph W., Petrov V.: Combined self-phase modulation and amplification of femtosecond light pulses. *Appl. Phys. B* 49/2, 113-119 (1989) PACS: 42.55M 42.60

Holzapfel W., Settgast W.: Precise force measurement over 6 decades applying the resonator-internal photoelastic effect. *Appl. Phys. B* 49/2, 169-172 (1989) PACS: 06.00 42.60 42.80

Husinsky W., Mitterer S., Grabner G., Baumgartner I.: Photolysis by UV and visible laser radiation of native and doped biological tissue. *Appl. Phys. B* 49/5, 463-467 (1989) PACS: 87.55H 82.50 87.15 87.50

Imasaka T., Kawasaki S., Ishibashi N.: Generation of more than 40 laser emission lines from the ultraviolet to the visible regions by two-color stimulated Raman effect. *Appl. Phys. B* 49/4, 389-392 (1989) PACS: 42.65 51.70

Jánossy M., Rozsa K., Apai P., Mezei P., Horváth P., Csillag L., Kroo N.: Pulsed 469.4 nm hollow cathode He-Kr laser. *Appl. Phys. B* 49/4, 343-347 (1989) PACS: 42.55F 42.60

Jia Q.-k.: An analysis of the free-electron laser small-signal gain in a resonator Gaussian mode. *Appl. Phys. B* 49/6, 541-544 (1989) PACS: 42.55 42.60

Karve R.S., Nayak A.K., Sarkar S.K., Rama Rao K.V.S., Mittal J.P.: Selectivity enhancement in tritium isotope separation by multiple frequency multiple photon dissociation of the  $\text{CTF}_3/\text{CHF}_3$  system. *Appl. Phys. B* 49/6, 571-576 (1989) PACS: 82.50 33.00

Kaschke M., Koch C.: Calculation of nonlinear optical polarization and phase matching in biaxial crystals. *Appl. Phys. B* 49/5, 419-423 (1989) PACS: 42.65

Kerr G.A., Hough J.: Coherent addition of laser oscillators for use in gravitational wave antennas. *Appl. Phys. B* 49/5, 491-495 (1989) PACS: 04.80 07.60 42.60

Kim Y.P., Hutchinson M.H.R.: Intensity-induced nonlinear effects in UV window materials. *Appl. Phys. B* 49/5, 469-478 (1989) PACS: 42.65 42.70 78.20

Kocsis G., Bakos J.S., Ignácz P.N.: Experimental comparison of blow-off methods for plasma-density measurements. *Appl. Phys. B* 49/5, 415-418 (1989) PACS: 52.40M 52.70

Krausz F., Wintner E.: Atmospheric influences in optical third-harmonic generation experiments. *Appl. Phys. B* 49/5, 479-483 (1989) PACS: 42.65K

Kröll S., Aldén M., Bengtsson P.-E., Löfström C.: An evaluation of precision and systematic errors in vibrational CARS thermometry. *Appl. Phys. B* 49/5, 445-453 (1989) PACS: 42.65 78.30

Kummrow A., Eichler H.J.: Absorption bistability in evaporated  $\text{ZnSe}_x$  thin films. *Appl. Phys. B* 49/6, 497-502 (1989) PACS: 42.65P

Lago A., Woehl Jr. G., Riva R.: A pulsed dye laser with grazing incidence and folded cavity. *Appl. Phys. B* 49/1, 73-76 (1989) PACS: 42.60D

Lange B., Noda M., Marowsky G.: High-speed  $\text{N}_2$ -CARS-thermometry. *Appl. Phys. B* 49/1, 33-38 (1989) PACS: 42.65

Laptev V.B., Ryabov E.A., Tumanova L.M.: Laser separation of oxygen isotopes by IR multiphoton dissociation of  $(\text{CH}_3)_2\text{O}$ . *Appl. Phys. B* 49/1, 77-83 (1989) PACS: 82.50 33.00 35.00

Lo D.: The role of halogen donors in discharge instability of rare-gas halide excimer lasers. *Appl. Phys. B* 49/6, 535-540 (1989) PACS: 34.80 42.55 52.80

Luh W.T., Li Y., Huennekens J.: 830 nm emission in sodium vapor. *Appl. Phys. B* 49/4, 349-359 (1989) PACS: 42.65K

Lüpke G., Marowsky G., Steinhoff R.: Phase-controlled nonlinear interferometry. *Appl. Phys. B* 49/3, 283-289 (1989) PACS: 42.65

Ma P.H., Sugita K., Arai S.: Production of highly concentrated  $^{13}\text{C}$  by continuous two-stage IRMPD.  $\text{CBr}_3\text{F}_2/\text{HI}$ ,  $\text{CCl}_2\text{F}_2/\text{HI}$  and  $\text{CBrClF}_2/\text{HI}$  mixtures. *Appl. Phys. B* 49/6, 503-512 (1989) PACS: 82.50

Meier B., Penzkofer A.: Determination of nonlinear refractive indices by external self-focusing. *Appl. Phys. B* 49/6, 513-519 (1989) PACS: 42.65J

Nalik J., Lange W., Mitsuhashi F.: Complexity out of a simple structure: The intricate multistable behaviour of an optical resonator filled with sodium atoms. *Appl. Phys. B* 49/3, 191-199 (1989) PACS: 42.65P

Nayak A.K., Karve R.S., Sarkar S.K., Rama Rao K.V.S., Mittal J.P.: T/D isotope selectivity in  $\text{CO}_2$  laser induced multiple-frequency multiphoton dissociation of trifluoromethane-T. *Appl. Phys. B* 49/2, 139-143 (1989) PACS: 82.50 33.00

Neckel H., Wolfrum J.: IR diode laser measurements of the  $\text{NH}_3(v_2)$  band at different temperatures. *Appl. Phys. B* 49/2, 85-89 (1989) PACS: 33.35

Nicola S. de, Kaplan A.E., Martellucci S., Mormile P., Pierattini G., Quartieri J.: Stable hysteretic reflection of light at a nonlinear interface. *Appl. Phys. B* 49/5, 441-444 (1989) PACS: 42.10F 42.60 46.65 42.80

O'Neil C., Galarneau P., Denariez-Roberge M.: The effect of the relative position of the bandgap with respect to laser wavelength on the behaviour of DFWM in semiconductor-doped glasses. *Appl. Phys. B* 49/4, 327-330 (1989) PACS: 78.20 42.70

Ogawa T.: Two unstable oscillations in the multimode laser with modulated inversion. *Appl. Phys. B* 49/5, 397-407 (1989) PACS: 42.50T 42.55 05.45

Olafsson A., Hammerich M., Bülow J., Henningsen J.: Photoacoustic detection of  $\text{NH}_3$  in power plant emission with a  $\text{CO}_2$  laser. *Appl. Phys. B* 49/2, 91-97 (1989) PACS: 07.65G 42.55 86.70 86.70

Otis C.E.: Detection of neutral products formed during excimer laser ablation of polyimide by UV and VUV laser photoionization/mass spectrometry. *Appl. Phys. B* 49/5, 455-461 (1989) PACS: 07.75 79.20 82.80

Przybylski M., Otto B., Gerhardt H.: Spectral purity of pulsed dye lasers. *Appl. Phys. B* 49/3, 201-203 PACS: 42.55M 42.60

Radioff W., Hohmann H., Ritze H.-H., Paul R.: Excimer laser photolysis of polybdenum hexacarbonyl with buffer gas. *Appl. Phys. B* 49/4, 301-305 (1989) PACS: 82.50 81.15

Romano V., Zweig A.D., Frenz M., Weber H.P.: Time-resolved thermal microscopy with fluorescent films. *Appl. Phys. B* 49/6, 527-533 (1989) PACS: 07.20n 42.30 87.60

Rotman S.R.: Ambiguities in the analysis of non-radiative energy transfer data in solid-state laser materials. *Appl. Phys. B* 49/1, 59-64 (1989) PACS: 42.55N

Sankey J.D., Mandel A.A.: The production of ions for single-ion traps. *Appl. Phys. B* 49/1, 69-72 (1989) PACS: 34.50 35.80

Schulz R., Kuckartz M., Harder H.: Wavelength tunable subpicosecond pulse generation with a fiber grating Raman laser. *Appl. Phys. B* 49/3, 263-268 (1989) PACS: 42.80M 42.65 42.70

Siese M., Tiemann E.: Combination of Doppler-free polarization spectroscopy and magnetic rotation for the example of  $\text{IBr}$ . *Appl. Phys. B* 49/3, 245-250 (1989) PACS: 33.20K 33.45 07.65

Speiser S.: Observation of laser-induced off-resonance intermolecular electronic energy transfer. *Appl. Phys. B* 49/2, 109-112 (1989) PACS: 33.00 42.65 42.70

Stange H., Petermann K., Huber G., Duczynski E.W.: Continuous wave 1.6  $\mu\text{m}$  laser action in Er doped garnets at room temperature. *Appl. Phys. B* 49/3, 269-273 (1989) PACS: 42.55R 78.45 78.55

Steiner I., Enders V., Elsner F., Neuhauser W., Toschek P.E., Blatt R., Helmcke J.: A dye ring-laser spectrometer for precision spectroscopy. *Appl. Phys. B* 49/3, 251-256 (1989) PACS: 42.50 42.60

Steyer M., Stankov K.A., Mizoguchi H., Ouyang B., Schäfer F.P.: Compact, wide aperture X-ray preionized  $\text{XeCl}$  laser with high specific optical power. *Appl. Phys. B* 49/4, 331-337 (1989) PACS: 42.55G 42.60 52.80

Szatmári S., Kühnle G., Jasny J., Schäfer F.P.: KrF laser system with corrected pulse front and compressed pulse duration. *Appl. Phys. B* 49/3, 239-244 (1989) PACS: 42.60 42.55

Szczepanski P., Arnesson J., Kneubühl F.K.: Energy theory of waveguide distributed feedback gas lasers. *Appl. Phys. B* 49/1, 49-57 (1989) PACS: 42.60B 42.60 42.80

Telle H.R.: Narrow linewidth laser diodes with broad continuous tuning range. *Appl. Phys. B* 49/3, 217-226 (1989) PACS: 42.55P 42.60

Tervonen E., Turunen J., Friberg A.T.: Transverse laser-mode structure determination from spatial coherence measurements: Experimental results. *Appl. Phys. B* 49/5, 409-414 (1989) PACS: 42.60 42.10 42.50

Vainer Yu.G., Gruzdev N.V., Puretzky A.A., Sil'kis E.G., Titov V.D.: Resonant Raman scattering of vibrationally highly excited supersonic jet-cooled  $\text{SO}_2$  molecules. *Appl. Phys. B* 49/2, 131-137 (1989) PACS: 33.20F 33.50 34.30

Wang Y., Lin B., Qian Y.: Spectral structure of the 627.8 nm gold vapor laser line. *Appl. Phys. B* 49/2, 149-153 (1989) PACS: 32.70J 42.55

Wazen P., Bourdet G.L.:

Experimental investigation of the MIR optically pumped ammonia bidirectional ring laser.

Appl. Phys. B 49/4, 377-381 (1989) PACS: 42.55 42.60

Wegner T., Petermann K.:

Excited state absorption of  $Ti^{3+}:YAlO_3$ .

Appl. Phys. B 49/3, 275-278 (1989) PACS: 42.55R 78.40 78.55

Weiss C.O., Klische W., Abraham N.B., Hübner U.:

Comparison of  $NH_3$  laser dynamics with the extended Lorenz model.

Appl. Phys. B 49/3, 211-215 (1989) PACS: 42.50T 05.45

Wellegehausen B., Hube M., Jin F.:

Investigations on laser plasma soft X-ray sources generated with low energy laser systems.

Appl. Phys. B 49/3, 173-178 (1989) PACS: 52.50J 42.55

Werle P., Slemr F., Gehrtz M., Brügel C.:

Quantum-limited FM-spectroscopy with a lead-salt diode laser.

Appl. Phys. B 49/2, 99-108 (1989) PACS: 07.65

Zheludev N.I., Ruddock I.S., Illingworth R.:

Intensity dependence of thermal nonlinear optical activity in crystals.

Appl. Phys. B 49/1, 65-67 (1989) PACS: 42.65 42.70

Name	First Name	Applied Physics	PACS	Name	First Name	Applied Physics	PACS	Name
Abdul-Gader M.M.	Abdul-Gader M.M.	A 49/6, 665-670 (1989)	72.20	Chebotayev V.P.	Baklanov E.V.	B 49/2, 163-167 (1989)	32.00	Fribe
Abélaard P.	Faber J.	A 49/3, 225-232 (1989)	66.30	Chen G.P.	Chen G.P.	A 49/6, 711-718 (1989)	79.20	Frölic
Abraham N.B.	Weiss C.O.	B 49/3, 211-215 (1989)	42.50T	Christov I.P.	Danailov M.B.	B 49/4, 371-375 (1989)	42.30V	Führ
Acuna A.U.	Costela A.	B 49/6, 545-552 (1989)	33.50	Claridge D.A.	Claridge D.A.	A 49/1, 65-68 (1989)	66.30	Führ
Aers G.C.	Jackman T.E.	A 49/3, 335-339 (1989)	68.35D	Clark B.K.	Clark B.K.	B 49/2, 155-161 (1989)	42.55H	Gadka
Affrossman S.	Affrossman S.	A 49/5, 533-542 (1989)	79.20	Clauws, P.	Motoko-Kwete,	A 49/6, 659-664 (1989)	61.70	Galar
Ahmad-Bitar R.N.	Abdul-Gader M.M.	A 49/6, 665-670 (1989)	72.20	Cochran J.F.	Heinrich B.	A 49/5, 473-490 (1989)	75.70	Garr
Al-Dhahir R.K.	Al-Dhahir R.	B 49/5, 435-440 (1989)	82.50M	Cole M.	Cole M.	A 49/3, 249-257 (1989)	61.40	Gehr
Aldén M.	Kröll S.	B 49/5, 445-453 (1989)	42.65	Comelli G.	Arvanitis D.	A 49/4, 393-397 (1989)	07.85	Geof
Alderman J.	Affrossman S.	A 49/5, 533-542 (1989)	79.20	Cormack A.N.	Ling S.	A 49/1, 69-73 (1989)	77.40	Gerh
Amzil H.	Barhdadi A.	A 49/3, 233-237 (1989)	61.16D	Costela A.	Costela A.	B 49/6, 545-552 (1989)	33.50	Gjord
Anderson S.	Zhang Z.	A 49/1, 41-54 (1989)	61.40	Coulman D.	Gritsch T.	A 49/4, 403-406 (1989)	68.35R	Giro
Ando M.	Reichling M.	A 49/6, 707-710 (1989)	78.70D	Cramer C.H.	Affrossman S.	A 49/5, 533-542 (1989)	79.20	Glass
Andrieu S.	Andrieu S.	A 49/6, 719-722 (1989)	07.60F	Cruickshank F.R.	Affrossman S.	A 49/5, 533-542 (1989)	79.20	Gnas
Angadi M.A.	Angadi M.A.	A 49/3, 273-277 (1989)	73.60	Csillag L.	Janossy M.	B 49/4, 343-347 (1989)	42.55F	Gnep
Aniya M.	Aniya M.	A 49/6, 641-646 (1989)	68.65	Curin R.	Passerini S.	A 49/4, 425-429 (1989)	61.40	Gold
Apai P.	Janossy M.	A 49/4, 343-347 (1989)	42.55F	Czaputa R.	A 49/4, 431-436 (1989)	A 71.55	Gold	
Arabat J.	Etchepare J.	B 49/5, 425-429 (1989)	33.20	Czaputa R.	A 49/3, 269-272 (1989)	A 79.20	Gon	
Arai S.	Ma P.H.	B 49/6, 503-512 (1989)	82.50	Czekaj D.	A 49/3, 269-272 (1989)	A 79.20	Gon	
Araya-Pochet J.	Ballantine C.A.	A 49/5, 459-466 (1989)	75.30G	d'Aitaya F.	Andrieu S.	A 49/6, 719-722 (1989)	07.60F	Gon
Arnesson J.	Arnesson J.	B 49/1, 1-28 (1989)	45.55E	D'Anna E.	Majni G.	A 49/2, 181-187 (1989)	68.55	Goo
Arnesson J.	Szczepanski P.	B 49/1, 49-57 (1989)	42.60B	d'Avitaya F.A.	Andrieu S.	A 49/6, 719-722 (1989)	07.60F	Grat
Arrott A.S.	Heinrich B.	A 49/5, 473-490 (1989)	75.70	Dafu C.	Arnesson J.	B 49/1, 1-28 (1989)	45.55E	Grac
Arvanitis D.	Arvanitis D.	A 49/4, 393-397 (1989)	07.85	Dai X.	Binh L.N.	B 49/4, 393-396 (1989)	42.65	Grill
Atake T.	Hamano A.	A 49/1, 91-94 (1989)	64.60	Dam N.	Dam N.	B 49/1, 39-47 (1989)	34.50E	Grin
Audoin C.	Candelier V.	B 49/4, 365-370 (1989)	32.80B	Danailov M.B.	Danailov M.B.	B 49/4, 371-375 (1989)	42.30V	Grit
Au L.B.	Au L.B.	B 49/4, 339-342 (1989)	42.80	Das T.K.	Das T.K.	B 49/6, 557-564 (1989)	42.65	Gron
Aussenegg F.R.	Aussenegg F.R.	B 49/3, 279-281 (1989)	78.65	Dederichs P.H.	Blügel S.	A 49/6, 547-562 (1989)	75.30P	Gru
Baberschke K.	Arvanitis D.	A 49/4, 393-397 (1989)	07.85	Demtröder W.	Fuhrmann W.	B 49/1, 29-32 (1989)	42.55	Gün
Bachor H.-A.	Bachor H.-A.	B 49/4, 291-300 (1989)	42.50	Denariez-Roberge M	O'Neil C.	B 49/4, 327-330 (1989)	78.20	Gün
Back M.H.	Giroux L.	B 49/4, 307-313 (1989)	33.80K	Denhoff M.W.	Jackman T.E.	A 49/3, 335-339 (1989)	68.35D	Gup
Back R.A.	Giroux L.	B 49/4, 307-313 (1989)	33.80K	DeWames R.E.	DeWames R.E.	A 49/3, 325-329 (1989)	74.60	Hadj
Badwal S.P.S.	Badwal S.P.S.	A 49/1, 13-24 (1989)	81.60	Dickens P.G.	Claridge D.A.	A 49/1, 65-68 (1989)	66.30	Haga
Baev V.M.	Baev V.M.	B 49/4, 315-322 (1989)	32.70J	Dinev S.G.	Dinev S.G.	B 49/6, 521-525 (1989)	32.00	Hajo
Bailey R.T.	Affrossman S.	A 49/5, 533-542 (1989)	79.20	Dodonov A.I.	Dodonov A.I.	A 49/3, 299-304 (1989)	79.20	Hajo
Baklanov E.V.	Baklanov E.V.	B 49/2, 163-167 (1989)	32.00	Domke M.	Arvanitis D.	A 49/3, 393-397 (1989)	07.85	Hajo
Bakos J.S.	Kocsis G.	B 49/5, 415-418 (1989)	52.40M	Donath M.	Donath M.	A 49/4, 351-364 (1989)	75.30P	Hall
Baliga S.	Baliga S.	A 49/2, 139-141 (1989)	74.70	Dong S.Y.	Dong S.Y.	B 49/6, 553-556 (1989)	68.45A	Ham
Ballentine C.A.	Ballentine C.A.	A 49/5, 459-466 (1989)	75.30G	Donkersloot H.C.	Broeder F.J.A. den	A 49/5, 507-512 (1989)	75.70	Ham
Balykin V.I.	Balykin V.I.	B 49/4, 383-388 (1989)	42.65K	DorikensVanpraet L	Motoko-Kwete	A 49/6, 659-664 (1989)	61.70	Ham
Barhdadi A.	Barhdadi A.	A 49/3, 233-237 (1989)	61.16D	Dorikens M.	Costela A.	A 49/6, 545-552 (1989)	33.50	Ham
Barr J.R.M.	Barr J.R.M.	B 49/4, 323-325 (1989)	42.60D	Douhal A.	Blügel S.	A 49/6, 547-562 (1989)	75.30P	Härde
Bäuerle D.	Ludorf W.	A 49/2, 221-223 (1989)	74.70	Drittler B.	Stange H.	B 49/3, 269-273 (1989)	42.55R	Härd
Baumgartner I.	Husinsky W.	B 49/5, 463-467 (1989)	87.55H	Dutcher J.R.	Heinrich B.	A 49/5, 473-490 (1989)	75.70	Heis
Baumgart P.	Hillebrands B.	A 49/6, 589-598 (1989)	75.30D	Dyer P.E.	Al-Dhahir R.	A 49/5, 435-440 (1989)	82.50M	Heis
Bazhenov V.Yu.	Bazhenov V.Yu.	B 49/5, 485-489 (1989)	42.65J	Eckert H.	Zhang Z.	A 49/1, 41-54 (1989)	61.40	Heli
Bebelis S.	Vayenas C.G.	A 49/1, 95-103 (1989)	85.80	Eckstein W.	Dodonov A.I.	A 49/3, 299-304 (1989)	79.20	Hem
Becker T.	Becker T.	B 49/3, 257-262 (1989)	32.60	Egelhoff Jr. W.F.	Heinrich B.	A 49/5, 473-490 (1989)	75.70	Hes
Behrm R.J.	Gritsch T.	A 49/4, 403-406 (1989)	68.35R	Eichler H.J.	Kummrow A.	B 49/6, 497-502 (1989)	42.65P	Hill
Bengtsson P.-E.	Kröll S.	B 49/5, 445-453 (1989)	42.65	Elg A.P.	Reif J.	A 49/2, 199-204 (1989)	42.85F	Hin
Bergh H. van den	Brachottte D.	A 49/2, 189-197 (1989)	42.60	Elmers H.J.	Gradmann U.	A 49/6, 563-571 (1989)	75.70A	Hof
Bernards J.P.C.	Bernards J.P.C.	A 49/5, 491-497 (1989)	75.60	Elsner F.	Steiner I.	B 49/3, 251-256 (1989)	42.50	Hoh
Beuermann Th.	Beuermann Th.	B 49/2, 145-148 (1989)	81.15	Enders V.	Steiner I.	B 49/3, 251-256 (1989)	42.50	Hoh
Binh L.N.	Binh L.N.	B 49/4, 393-396 (1989)	42.65	Engel W.	Kordesch M.E.	A 49/4, 399-402 (1989)	79.60	Hora
Blatt R.	Steiner I.	B 49/3, 251-256 (1989)	42.50	Erbschloe D.R.	Erbschloe D.R.	B 49/5, 431-433 (1989)	42.40	Hora
Bloyet D.	Brousse T.	A 49/2, 217-220 (1989)	74.70	Ernst W.E.	Ernst W.E.	B 49/3, 227-237 (1989)	35.80	Hora
Blügel S.	Blügel S.	A 49/6, 547-562 (1989)	75.30P	Erskine J.L.	Ballentine C.A.	A 49/5, 459-466 (1989)	75.30G	Hou
Bor Zs.	Heszler P.	A 49/6, 739-740 (1989)	82.35	Ertl G.	Gritsch T.	A 49/4, 403-406 (1989)	68.35R	Hou
Bourdet G.L.	Wazen P.	B 49/4, 377-381 (1989)	42.55	Eschner J.	Baev V.M.	A 49/4, 315-322 (1989)	32.70J	Hou
Bradshaw A.M.	Kordesch M.E.	B 49/4, 399-402 (1989)	79.60	Etchepare J.	B 49/5, 425-429 (1989)	A 33.20	Hou	
Braichotte D.	Braichotte D.	A 49/2, 189-197 (1989)	42.60	Faber J.	Faber J.	A 49/3, 225-232 (1989)	66.30	Hou
Bräuchle C.	Werle P.	B 49/2, 99-108 (1989)	07.65	Fang C.S.	Fang C.S.	A 49/3, 285-292 (1989)	73.40	Hou
Briones F.	Ruiz A.	A 49/5, 543-545 (1989)	68.55	Fayazov I.M.	Dodonov A.I.	A 49/3, 299-304 (1989)	79.20	Hou
Briones F.	Briones F.	A 49/6, 729-737 (1989)	68.55	Fedorovich S.D.	Dodonov A.I.	A 49/3, 299-304 (1989)	79.20	Hou
Broeder F.J.A. den	Broeder F.J.A. den	A 49/5, 507-512 (1989)	75.70	Ferriau F.	Andrieu S.	A 49/6, 719-722 (1989)	07.60F	Hou
Brousse T.	Brousse T.	A 49/2, 217-220 (1989)	74.70	Fick D.	Fick D.	A 49/4, 343-350 (1989)	68.35	Hou
Bruno P.	Bruno P.	A 49/5, 499-506 (1989)	75.30G	Figueras J.M.	Costela A.	B 49/6, 545-552 (1989)	33.50	Hou
Bülow J.	Olafsson A.	B 49/2, 91-97 (1989)	07.65G	Fink R.L.	Ballentine C.A.	A 49/5, 459-466 (1989)	75.30G	Hou
Burggraaf A.J.	Hassel B.A. van	A 49/1, 33-40 (1989)	66.30	Fish P.T.H.	Bachor H.-A.	B 49/4, 291-300 (1989)	42.50	Hou
Candelier V.	Candelier V.	B 49/4, 365-370 (1989)	32.80B	Foulkes-Williams C.	Al-Dhahir R.	B 49/5, 435-440 (1989)	82.50M	Hou
Catlow C.R.A.	Ling S.	A 49/1, 69-73 (1989)	77.40	Franceschetti D.R.	Franceschetti D.R.	A 49/1, 111-116 (1989)	82.45	Hou
Cérez P.	Candelier V.	B 49/4, 365-370 (1989)	32.80B	Franke C.	Kolb D.M.	A 49/4, 379-387 (1989)	73.20	Hou
Chang C.Y.	Liu W.C.	A 49/3, 321-324 (1989)	73.40	Freisinger B.	Freisinger B.	B 49/2, 121-129 (1989)	33.80	Hou
Chang Y.L.	Fang C.S.	A 49/3, 285-292 (1989)	73.40	Frenz M.	Romano V.	B 49/6, 527-533 (1989)	07.20n	Ito
Chebotayev V.P.	Chebotayev V.P.	B 49/4, 361-364 (1989)	42.50					

Name	First Name	Applied Physics	PACS	Name	First Name	Applied Physics	PACS
Friberg A.T.	Tervonen E.	B 49/5, 409-414 (1989)	42.60	Jackman T.E.	Jackman T.E.	A 49/3, 335-339 (1989)	68.35D
Frölich D.	Fuhrberg P.	B 49/3, 205-209 (1989)	42.55B	Jacobsen T.	Skou E.	A 49/1, 117-121 (1989)	66.30
Fuhrberg P.	Fuhrberg P.	B 49/3, 205-209 (1989)	42.55B	Jain A.L.	Baliga S.	A 49/2, 139-141 (1989)	74.70
Fuhrmann W.	Fuhrmann W.	B 49/1, 29-32 (1989)	42.55	Janossy M.	Janossy M.	B 49/4, 343-347 (1989)	42.55F
Gadkari S.C.	Gadkari S.C.	A 49/3, 331-334 (1989)	74.90	Janssen E.	Hinzert H.	A 49/3, 313-320 (1989)	79.60
Galarneau F.	O'Neil C.	B 49/4, 327-330 (1989)	78.20	Jasny J.	Szatmári S.	B 49/3, 239-244 (1989)	42.60
Garriga M.	Humlicek J.	A 49/4, 407-412 (1989)	78.65F	Jia Y.H.	Binh L.N.	B 49/4, 393-396 (1989)	42.65
Gehrtz M.	Werle P.	B 49/2, 99-108 (1989)	07.65	Jia Q.-k.	Jia Q.-k.	B 49/6, 541-544 (1989)	42.55
Geoffroy C.	Faber J.	A 49/3, 225-232 (1989)	66.30	Jin F.	Wellegehausen B.	B 49/3, 173-178 (1989)	52.50J
Gerhardt H.	Przybylski M.	B 49/3, 201-203	42.55M	Jonge W.J.M. de	Gronckel H.A.M. de	A 49/5, 467-472 (1989)	75.50F
Giordano V.	Candelier V.	B 49/4, 365-370 (1989)	32.80B	Jou C.J.	Jou C.J.	A 49/2, 171-179 (1989)	74.70
Giroux L.	Giroux L.	B 49/4, 307-313 (1989)	33.80K	Kaindl G.	Arvanitis D.	A 49/4, 393-397 (1989)	07.85
Glasse M.D.	Cole M.	A 49/3, 249-257 (1989)	61.40	Kämper K.-P.	Kämper K.-P.	A 49/6, 573-578 (1989)	75.70A
Gnaser H.	Chen G.P.	A 49/6, 711-718 (1989)	79.20	Kanata T.	Kanata T.	A 49/3, 305-311 (1989)	81.15C
Gnepf S.	Arnesson J.	B 49/1, 1-28 (1989)	45.55E	Kändler J.	Ernst W.E.	B 49/3, 227-237 (1989)	35.80
Goldberg I.B.	DeWames R.E.	A 49/3, 325-329 (1989)	74.60	Kaplan A.E.	Nicola S. de,	B 49/5, 441-444 (1989)	42.10F
Goldmann A.	Hinzert H.	A 49/3, 313-320 (1989)	79.60	Karve R.S.	Karve R.S.	B 49/6, 571-576 (1989)	82.50
González L.	Ruiz A.	A 49/5, 543-545 (1989)	68.55	Karve R.S.	Nayak A.K.	B 49/2, 139-143 (1989)	82.50
González L.	Briones F.	A 49/6, 729-737 (1989)	68.55	Kaschke M.	Kaschke M.	B 49/5, 419-423 (1989)	42.65
Goodenough J.B.	Claridge D.A.	A 49/1, 65-68 (1989)	66.30	Kawasaki S.	Imasaki T.	B 49/4, 389-392 (1989)	42.65
Grabner G.	Husinsky W.	B 49/5, 463-467 (1989)	87.55H	Kawata H.	Reichling M.	A 49/6, 707-710 (1989)	78.70D
Gradmann U.	Gradmann U.	A 49/6, 563-571 (1989)	75.70A	Kay E.	Mauri D.	A 49/5, 439-447 (1989)	75.70A
Grillon G.	Etchepare J.	B 49/5, 425-429 (1989)	33.20	Kempf J.	Kempf J.	A 49/3, 279-283 (1989)	07.75
Grimm R.	Grimm R.	B 49/3, 179-189 (1989)	32.70J	Kennedy J.H.	Zhang Z.	A 49/1, 41-54 (1989)	61.40
Gritsch T.	Gritsch T.	A 49/4, 403-406 (1989)	68.35R	Kermann D.	Kermann D.	A 49/5, 523-526 (1989)	75.50C
Gronckel H.A.M. de	Gronckel H.A.M. de	A 49/5, 467-472 (1989)	75.50F	Kerr G.A.	Kerr G.A.	B 49/5, 491-495 (1989)	04.80
Gruzdev N.V.	Vainer Yu.G.	B 49/2, 131-137 (1989)	33.20F	Kikkawa S.	Kikkawa S.	A 49/1, 105-109 (1989)	81.10
Güntherodt G.	Hillebrands B.	A 49/6, 589-598 (1989)	75.30D	Kim E. K.	Kim H.-S.	A 49/2, 143-147 (1989)	61.70
Güntherodt G.	Kämper K.-P.	A 49/6, 573-578 (1989)	75.70A	Kim H.-S.	Kim Y.P.	B 49/5, 469-478 (1989)	42.65
Gupta M.K.	Gadkari S.C.	A 49/3, 331-334 (1989)	74.90	Kleinherbers K.K.	Hinzert H.	A 49/3, 313-320 (1989)	79.60
Hadjichristov G.B.	Dinev S.G.	B 49/6, 521-525 (1989)	32.00	Klische W.	Weiss C.O.	B 49/3, 211-215 (1989)	42.50T
Hage J.	Wagner P.	A 49/2, 123-138 (1989)	61.70E	Kneubühl F.K.	Arnesson J.	B 49/1, 1-28 (1989)	45.55E
Hagenmüller P.	Reau J.M.	A 49/1, 3-12 (1989)	66.30	Kneubühl F.K.	Szczepeanski P.	B 49/1, 49-57 (1989)	42.60B
Hajos G.	Heszler P.	A 49/6, 739-740 (1989)	82.35	Kobayashi M.	Aniya M.	A 49/6, 641-646 (1989)	68.65
Hall W.F.	DeWames R.E.	A 49/3, 325-329 (1989)	74.60	Koch C.	Kaschke M.	B 49/5, 419-423 (1989)	42.65
Hamakawa Y.	Kanata T.	A 49/3, 305-311 (1989)	81.15C	Kocsis G.	Kocsis G.	B 49/5, 415-418 (1989)	52.40M
Hamano A.	Hamano A.	A 49/1, 91-94 (1989)	64.60	Kogelschatz U.	Freisinger B.	B 49/2, 121-129 (1989)	33.80
Hamel A.	Candelier V.	B 49/4, 365-370 (1989)	32.80B	Koizumi M.	Kikkawa S.	A 49/1, 105-109 (1989)	81.10
Hammerich M.	Olafsson A.	B 49/2, 91-97 (1989)	07.65G	Kolb D.M.	Kolb D.M.	A 49/4, 379-387 (1989)	73.20
Hardi H.	Schulz R.	B 49/3, 263-268 (1989)	42.80M	Kopina K.	Gronckel H.A.M. de	A 49/5, 467-472 (1989)	75.50F
Härdtl K.H.	Müller A.	A 49/1, 75-82 (1989)	66.30	Kordesch M.E.	Kordesch M.E.	A 49/4, 399-402 (1989)	79.60
Hassel B.A. van	Hassel B.A. van	A 49/1, 33-40 (1989)	66.30	Kosacki I.	Kosacki I.	A 49/4, 413-424 (1989)	66.30
Heinrich B.	Heinrich B.	A 49/5, 473-490 (1989)	75.70	Kozirev A.B.	Czekaj D.	A 49/3, 269-272 (1989)	79.20
Heist P.	Heist P.	B 49/2, 113-119 (1989)	42.55M	Krausz F.	Krausz F.	B 49/5, 479-483 (1989)	42.65K
Heimcke J.	Steiner I.	B 49/3, 251-256 (1989)	42.50	Krebs J.J.	Krebs J.J.	A 49/5, 513-521 (1989)	75.70
Henningsen J.	Olafsson A.	B 49/2, 91-97 (1989)	07.65G	Kröll S.	Kröll S.	B 49/5, 445-453 (1989)	42.65
Heszler P.	Heszler P.	A 49/6, 739-740 (1989)	82.35	Kroon N.	Janossy M.	B 49/4, 343-347 (1989)	42.55F
Hillebrands B.	Hillebrands B.	A 49/6, 589-598 (1989)	75.30D	Krötz G.	Krötz G.	A 49/2, 165-169 (1989)	72.20
Hinzert H.	Hinzert H.	A 49/3, 313-320 (1989)	79.60	Krylova E.A.	Dodonov A.I.	A 49/3, 299-304 (1989)	79.20
Hofer W.O.	Chen G.P.	A 49/6, 711-718 (1989)	79.20	Kuckartz M.	Schulz R.	B 49/3, 263-268 (1989)	42.80M
Hohmann H.	Radloff W.	B 49/4, 301-305 (1989)	82.50	Kühnle G.	Szatmári S.	B 49/3, 239-244 (1989)	42.60
Hollmann E.K.	Czekaj D.	A 49/3, 269-272 (1989)	79.20	Kuiper D.	Broeder F.J.A. den	A 49/5, 507-512 (1989)	75.70
Holzapfel W.	Holzapfel W.	B 49/2, 169-172 (1989)	06.00	Kumagai Naoaki	Kumagai Naoaki	A 49/1, 83-89 (1989)	72.60
Hornsey R.I.	Hornsey R.I.	A 49/3, 293-297 (1989)	79.70	Kumagai Nobuko	Kumagai Nobuko	A 49/1, 83-89 (1989)	72.60
Hornsey R.I.	Hornsey R.I.	A 49/6, 697-705 (1989)	79.70	Kummrow A.	B 49/6, 497-502 (1989)	B 49/6, 497-502 (1989)	42.65P
Horváth P.	Janossy M.	B 49/4, 343-347 (1989)	42.55F	Küper S.	Küper S.	A 49/2, 211-215 (1989)	33.20
Hough J.	Kerr G.A.	B 49/5, 491-495 (1989)	04.80	Lago A.	Lago A.	B 49/1, 73-76 (1989)	42.60D
Hoving W.	Broeder F.J.A. den	A 49/5, 507-512 (1989)	75.70	Lange B.	Lange B.	B 49/1, 33-38 (1989)	42.65
Hube M.	Wellegehausen B.	B 49/3, 173-178 (1989)	52.50J	Lange W.	Nalik J.	B 49/3, 191-199 (1989)	42.65P
Huber G.	Stange H.	B 49/3, 269-273 (1989)	42.55R	Lapeyre G.J.	Kordesch M.E.	A 49/4, 399-402 (1989)	79.60
Hübner U.	Weiss C.O.	B 49/3, 211-215 (1989)	42.50T	Laptev V.B.	Laptev V.B.	B 49/1, 77-83 (1989)	82.50
Huennekens J.	Clark B.K.	B 49/2, 155-161 (1989)	42.55H	Latham R.J.	Cole M.	A 49/3, 249-257 (1989)	61.40
Huennekens J.	Luh W.T.	B 49/4, 349-359 (1989)	42.65K	Lathrop D.A.	Zhang Z.	A 49/1, 41-54 (1989)	61.40
Hughes D.W.	Barr J.R.M.	B 49/4, 323-325 (1989)	42.60D	Lau F.	Lau F.	A 49/6, 671-675 (1989)	64.75
Humlicek J.	Humlicek J.	A 49/4, 407-412 (1989)	78.65F	Lederer T.	Arvanitis D.	A 49/4, 393-397 (1989)	07.85
Huomo H.	Huomo H.	A 49/6, 647-658 (1989)	66.30	Lee C.	Kim H.-S.	A 49/2, 143-147 (1989)	61.70
Husinsky W.	Husinsky W.	B 49/5, 463-467 (1989)	87.55H	Leggieri G.	Majni G.	A 49/2, 181-187 (1989)	68.55
Hutchinson M.H.R.	Kim Y.P.	B 49/5, 469-478 (1989)	42.65	Leitner A.	Aussenegg F.R.	B 49/3, 279-281 (1989)	78.65
Ignácz P.N.	Kocsis G.	B 49/5, 415-418 (1989)	52.40M	Lemahieu, I.	Motoko-Kwete	A 49/6, 659-664 (1989)	61.70
Illingworth R.	Zheludev N.I.	B 49/1, 65-67 (1989)	42.65	Liebsch A.	A 49/6, 677-679 (1989)	76.65E	
Imasaka T.	Imasaka T.	B 49/4, 389-392 (1989)	42.65	Lin B.	Wang Y.	B 49/2, 149-153 (1989)	32.70J
Ishibashi N.	Imasaka T.	B 49/4, 389-392 (1989)	42.65	Linford R.G.	Cole M.	A 49/3, 249-257 (1989)	61.40
Ishii T.	Ishii T.	A 49/1, 61-64 (1989)	66.30	Ling S.	Ling S.	A 49/1, 69-73 (1989)	77.40
Itoh N.	Singh J.	A 49/6, 631-639 (1989)	71.35	Liou S.S.	Liou S.S.	A 49/1, 25-31 (1989)	81.20



